SBC Ameritech Illinois

Report on Analysis of Fiber Records Mechanization

July 24 2001

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1. Executive Summary

On January 24, 2001, the Illinois Commerce Commission ("Commission") issued an order in Docket 00-0592 requesting Ameritech Illinois to file with the Commission a plan for mechanizing its dark fiber locations records. This plan was to provide a cost-benefit analysis regarding mechanization of dark fiber records, an explanation of what such mechanization entails, and an analysis of the factors involved in determining how and when Ameritech Illinois would implement such a plan. In addition, Ameritech Illinois was to provide updated information on the numbers of CLEC dark fiber inquiries. This report contains the findings of that analysis including evidence supporting Ameritech Illinois' conclusions on the cost-benefit of such mechanization for UNE dark fiber requests, and Ameritech Illinois' plans for mechanization of fiber records.

Mechanization of fiber records exists in Ameritech Illinois today. However, there is no single mechanized fiber database where all fiber data can be obtained. Rather, information is contained in the Automated Record and Engineering System (ARES-the database which contains plant location records)) and the Trunk Integrated Record Keeping System (TIRKS-the database where fiber assignments are recorded). Additional data is also maintained on paper records. Combined, these databases provide information on the location and routes of fiber, usage of fiber, and available spare dark fiber. The intent of this report is to present the feasibility of a real-time fiber database containing fiber cable route information (location data) and fiber usage information (fill data).

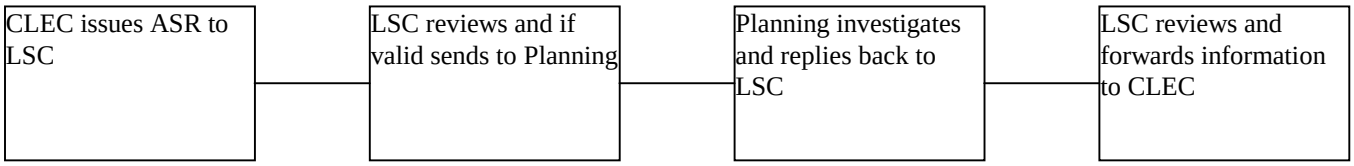
The current processing of CLEC requests for available UNE dark fiber requires the use of the aforementioned databases, mechanized or not. Mechanization into a single database requires the convergence of all this data into a single user system.

In analyzing the need for a dark fiber data base, Ameritech Illinois concluded the following:

1. Ameritech Illinois did not receive any UNE dark fiber requests until September 2000. From September 2000 through April 2001, Ameritech Illinois has received XXX total requests for UNE dark fiber. This equates to XXX requests per month.
2. Considering the demands for higher bandwidths, convergence of various transport protocols (TDM, SONET, FDDI, ESCON, ATM), the requirement to have network survivability, and other planning and engineering concerns over fiber deployment, SBC concluded that the investigation of a single fiber planning system was warranted. SBC developed cost estimates for fiber record conversion that exceeded XXX dollars (SBC 13 State).
3. SBC concluded that database synchronization, purification and standardization would require capital expenditures that exceeded identified cost benefits detailed below. Even with these understated estimates below, a cost benefit analysis did not justify mechanizing fiber records for UNE Dark Fiber requests.

2. Analysis of cost benefit relationship for CLEC UNE Dark Fiber requests.

Figure 1 provides a high level typical UNE dark fiber process.



Based upon actual studies, Ameritech Illinois' labor time to process existing requests is reflected in Table 1.

Labor Class	Hours Per Request	Total AI requests	Total Labor Hours
Planning	XXX	XXX	XXX
Local Service Center	XXX	XXX	XXX

Table 1: Time spent on processing existing requests for UNE dark fiber.

Entity	Available Hours Per year	% Of Time Available Per Year Required for Dark Fiber Requests
Individual	XXX	XXX
OSP Planning	XXX	XXX
IOF Planning	XXX	XXX

** Assumes all requests processed by one entity - for discussion purposes only. Figures represent "either or" scenario actual percentages would be less for all groups.

Table 2: Represents time available per individual and per organization

Group	Cost factor per hour	DF Request Hours per year	Estimated Cost per year
Planning	XXX	XXX	XXX
LSC	XXX	XXX	XXX
TOTAL			**XXX**

Table 3: Represents estimated costs to Ameritech Illinois for manually processing dark fiber requests:

Based on previously developed costs, the conversion of fiber records to a single standard database would cost Ameritech Illinois XXX dollars. Since the total labor cost of performing the inquiries

was XXX, there is no cost benefit justification for developing a single fiber database to accommodate CLEC requests for dark fiber.

3. Further analysis of cost benefit for Fiber Mapping and Inventory system

Ameritech Illinois has also investigated converging all fiber data into a single fiber database and enabling that data to be viewed geographically. This investigation was done in response to the large amounts of fiber being deployed in the network today, and the need to plan and engineer outside of traditional analog copper networks.

The following list of attributes was developed for such a database.

1. GIS Fiber Data (geographical view)
2. Fiber inventory (complete inventory including working and spare)
3. Capacity Information on fiber optic terminals connectivity.
    a. SONET Terminal capacity
    b. DLC capacity
    c. Asynchronous terminal capacity
    d. Open ended to accommodate future technologies
4. Connectivity to legacy systems (systems should "talk" to each other)
    a. TIRKS
    b. PLR (ARES system)

The following implementation steps were identified:

1. Create data repository.
2. Extract and input manual data (hard copies and PC based data)
3. Extract electronic data
    a. TIRKS fiber data
    b. PLR fiber data
4. Data synchronization
5. Change management process
6. Stewardship for ongoing maintenance.

The following figure further depicts this process:

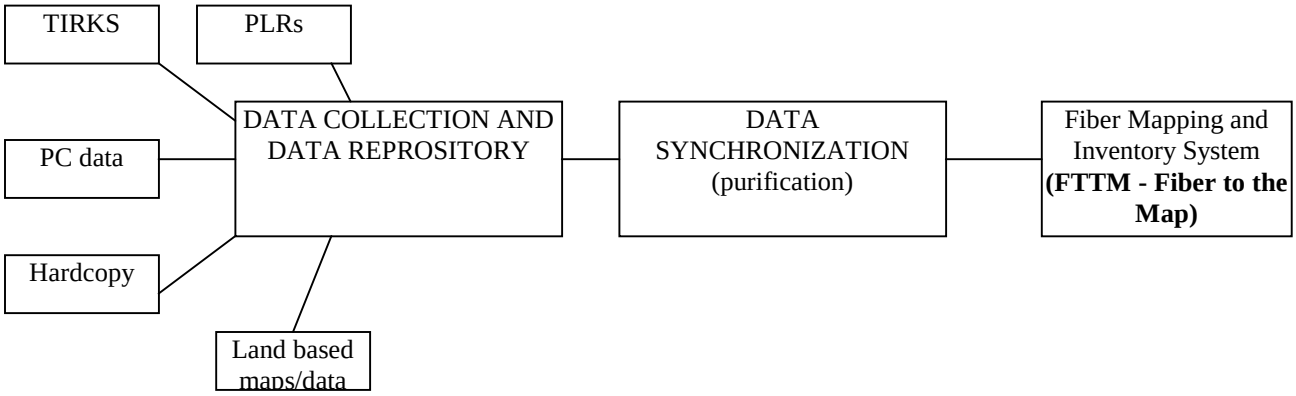


Figure 2: A high level view of fiber mechanization requirements.

Analysis of this process reflected potential time savings in planning and engineering fiber deployment to be in the neighborhood of XX%. (The estimated time spent on planning fiber deployment undertakings was estimated at XX% of the total planning time available, implementation of an integrated fiber data base could save as much as XX% of this time.) This equated to a total savings view of XXX throughout SBC's 13 states. Subsequent to that determination, a project was created to design, develop and implement a Fiber Mapping and Inventory System, Fiber to the Map ("FTTM"). The data required to realize this savings is:

1. Entire fiber route is shown via GIS database
2. Loop SONET/ASYNCHRONOUS Capacity Analysis-per node
3. Loop NGDLC Capacity Analysis-per system
4. Accurate fiber fill information

Based upon the above information, it is inherent that collection and synchronization of multiple sources of data be successful.

The difficulties encountered in this synchronization effort threaten desired cost to benefit attributes. These difficulties are outlined below:

1. Fiber inventory (complete inventory including working and spare)

   Although TIRKS contains assigned fibers, manual assignment records are also kept. Comparison of TIRKS data to the manual data revealed discrepancies. In addition, a comparison between mechanized downloads of fiber data from one database to another revealed discrepancies.

2. Capacity Information on fiber optic terminals.

Current terminal capacity efforts are not synchronized with FTTM. FTTM is devoted to fiber mapping and inventory; other efforts are underway to enable access to capacity information via GUI systems, in lieu of text commands. The integration of these capacity systems into a fiber mapping and inventory system is critical to cost savings realization.

3. Connectivity to legacy systems (TIRKS and ARES).

TIRKS inventories fiber fill data and terminal usage and capacity data. A mechanized interface must be developed to allow for single source inputs that automatically distribute information to other systems. This attribute is attainable, but requires complete data synchronization before implementation. See items 1 and 2 above for issues.

4. Ongoing maintenance.

Without continued fiber and terminal capacity inputs fiber mapping and inventory data becomes outdated. Critical to this oversight is linking data sources and data input work. This is necessary to avoid redundant work operations that will erode potential benefits.

The correction of the above issues requires manual intervention. A planner or other qualified personnel must review and reconcile all the differences. This activity includes review of TIRKS versus paper records, and when necessary, actual field verification.

There are 277 wire centers in Ameritech Illinois. All wire centers must be reviewed and reconciled. Estimates indicate that XX working hours per wire center would be required to complete the reconciliation. Another XX hours per wire center are needed for the corrected data to be input.

Total hours required	Labor Rate	Cost
Planning hours = XXX	XXX	XXX
Clerical input = XXX	XXX	XXX
TOTAL COST TO CORRECT		XXX

The cost to correct the items above is considered too high to go forward with a fiber map and inventory system. Original data collection and creation of a fiber database was XXX. Because of the high cost of reconciliation, a complete database is deemed unattainable at this time.

4. Schedule of Implementation for FTTM

Due to the issues identified above SBC undertook a scaleable approach to creation of a single fiber database. The original list of attributes listed below and in Section 3 have been reduced.

Original Attributes:

1. GIS Fiber Data (geographical view)
2. Fiber inventory (complete inventory including working and spare)
3. Capacity Information on fiber optic terminals connectivity.
    a. SONET Terminal capacity
    b. DLC capacity
    c. Asynchronous terminal capacity
    d. Open ended to accommodate future technologies
4. Connectivity to legacy systems
    a. TIRKS
    b. PLR (ARES system)

Revised Attributes:

1. GIS Fiber Data (geographical view)
2. Fiber data. The fiber data will be input from sources
    a) The first extract of data will contain fiber designations (i.e. CA001, 1-144). This data will come from the ARES system.
    b) The second extract will contain fiber assignment data. This data will come from the TIRKS data base. At this time there will be no reconciliation efforts.

5. Conclusion

Ameritech Illinois' cost benefit analysis clearly shows that the need for the development of a mechanized fiber database based upon CLEC requests for UNE Dark Fiber does not exist. Nevertheless, Ameritech Illinois has investigated the value of providing such a data base based upon potential savings in planning and engineering time. That effort encountered difficulties that greatly diminished the benefit. However, the value of collecting data from the various sources mentioned in this report is viewed as beneficial to possible future efforts and is continuing.